

From July, 1989 to September, 1989, K. Leighly visited the University of Leicester.

First the long EXOSAT observation of NGC 4051 was examined for the presence of an iron emission line. However, the flux level of this observation was low, and no significant line was found. Secondly, K. Leighly examined 40 of the 42 EXOSAT spectral survey sources (Turner and Pounds, 1989) for iron fluorescence lines. This project was undertaken with the aim of obtaining only upper limits on the size of the iron features. However, for 13 of the 40 sources, the fit was significantly improved by the addition of an emission line at  $\sim 6.5$  keV (F statistic  $> 90\%$  significance). Six showed improvement at  $> 99\%$  significance. In three of these, an ionized absorption edge improved the spectral fit. In one source, the spectral fit was significantly improved by the addition of a cold iron absorption edge at  $\sim 7.1$  keV. However, line equivalent widths and iron absorption columns are not well determined. Comparison of the host galaxy axial ratio with the line equivalent width suggests that larger equivalent widths occur in sources with more nearly face on host galaxies. This is perhaps an indication of fluorescence coming from an accretion disk. This work was presented at the 23rd ESLAB symposium.

While in residence at Montana State University, K. Leighly investigated models of the X-ray emitting plasma in the central region of AGN. Specifically, the dynamics of the electron positron pair plasma in the presence of a strong radiation field was investigated. The major difference between this work and previous work was that an extended radiation field was considered, and frame dependent effects were added. A simple magnetic viscosity was also included. These additional considerations have a major effect, depending on the choice of parameters, on the terminal velocity of a pair achieved. Part of this work was also presented at the 23rd ESLAB symposium.

Turner, T.J. and Pounds, K.A., 1989. *Mon. Not. R. astr. Soc.*, 240, 833.

(NASA-CR-193657) FINAL TECHNICAL  
REPORT, PERIOD ENDING 31 AUG. 1990  
(Montana State Univ.) 1 p

N94-70296

Unclass

29/89 0179757

CC: NSTIF